



**RESPONSE TO: RAISED BILL NO. 957, “AN ACT CONCERNING THE INCLUSION OF COMPUTER SCIENCE INSTRUCTION IN THE PUBLIC SCHOOL CURRICULUM, PROGRAMS OF TEACHER PREPARATION AND IN-SERVICE TRAINING PROGRAMS FOR TEACHERS.”**

**PROVIDED BY: SHANNON MARIMÓN, EXECUTIVE DIRECTOR OF THE CONNECTICUT COUNCIL FOR EDUCATION REFORM (CCER)**

**DATE: 6 MARCH 2019**

Chairmen McCrory and Sanchez, Ranking Members McCarty and Berthel, and honorable members of the Education Committee: my name is Shannon Marimón, I’m the new Executive Director of the Connecticut Council for Education Reform (CCER) and a resident of West Hartford. My testimony today is in support of **Raised Bill No. 957: “AN ACT CONCERNING THE INCLUSION OF COMPUTER SCIENCE INSTRUCTION IN THE PUBLIC SCHOOL CURRICULUM, PROGRAMS OF TEACHER PREPARATION AND IN-SERVICE TRAINING PROGRAMS FOR TEACHERS,”** with the caveat that this bill does not go nearly far enough in advancing a statewide commitment to computer science education in our state.

While CCER is highly supportive the inclusion of computer science instruction in the public school curriculum as well as programs of teacher preparation and in-service training programs for teachers, it’s important to note that we strongly urge the Committee to amend the language to ensure implementation oversight. To this end, CCER recommends the following:

- The establishment of a Computer Science<sup>1</sup> Task Force focused on expanding access to high-quality computer science education<sup>2</sup> in grades kindergarten through 12th grade (prioritizing high-need districts) by strengthening the skills of educators and increasing the number of computer science teachers in elementary and secondary education.
  - The Computer Science Task Force members will include: (1) the Governor or designee; (2) the Connecticut State Department of Education Commissioner or designee; (3) the Connecticut Department of Economic and Community

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<sup>1</sup> Computer Science means the study of computers and algorithmic processes, including their principles, their hardware and software designs, their implementation, and their impact on society. Computer Science is formally defined by the K-12 standards set by the Connecticut State Board of Education.

<sup>2</sup> High-quality professional learning means professional development activities that: (1) clarify the conceptual foundations of computer science, (2) teach research-based practices, including student centered and inquiry-based learning, and (3) are intended for existing teachers with or without prior exposure to computer science.

Development Commissioner or designee; (4) the Connecticut Board of Regents President or designee (5) Business and Industry Organizations; (6) Educational Nonprofit Organizations; (7) Connecticut Association of Public School Superintendents Executive Director or designee; (8) Institutes of Higher Education; (9) Citizen Advocates; and (10) A teacher leader from a statewide association representing computer science teachers.

- The Computer Science Task Force shall:
  - develop a state strategic plan for expanding computer science education that includes the following:
    - a summary of the current state landscape for K-12 computer science education, including diversity of students taking these courses;
    - a plan for expanding computer science education opportunities to every school in the state within five (5) years;
    - a plan for defining high quality professional learning for teachers to begin teaching computer science;
    - an ongoing evaluation process that is overseen by the board;
    - proposed rules that incorporate the principles of the strategic plan into the state's public education system as a whole; and
    - a plan to ensure long-term sustainability.
  - Submission of the strategic plan shall occur on or before September 19, 2019 to the governor (or designee) and the relevant legislative committees.
  
- The following language is pulled from Code.org's proposed recommendations but amended by CCER:
  - Computer science — Required course offering.
    - Beginning in the 2023-2024 school year, designated high-need public high school or designated high-need public charter high school shall offer at least one (1) computer science course.
    - Beginning in the 2023-2024 school year, each designated high-need public middle school or designated high-need public charter middle school shall offer instruction in exploratory computer science.
    - Beginning in the 2023-2024 school year, each designated high-need public elementary school or designated high-need public charter elementary school shall offer instruction in the basics of computer science and computational thinking.
    - A computer science course(s) or instruction in computer science offered by a designated high-need public school or public charter school shall: (1) Be of high quality, as defined by the Connecticut State Board of Education; and (2) Meet or exceed the standards and curriculum requirements established by the Connecticut State Board of Education.
    - Further, a computer science course offered by a designated high-need public high school or designated high-need public charter high school

should be offered in an in-person setting, and be offered as a virtual or distance course option only when a traditional classroom setting is not feasible.

- Computer Science Professional Development for Educators
  - (a) Subject to legislative appropriation, the SDE shall administer a competitive grant program to eligible entities through the SDE to develop and implement teacher professional development programs for the required computer science courses and content.
  - (b) For the purposes of this Section, eligible entities include: (1) A local educational agency, or a consortium of designated high-need local educational agencies, in the state, including public charter organizations; (2) High-quality computer science professional learning providers, including institutions of higher education in the state, non-profits, or private entities working in partnership with local education agencies.
  - (c) Eligible uses of the funding are as follows: (1) High-quality professional learning for K-12 computer science content (including travel to workshops); (2) Supports for K-12 computer science professional learning, including mentoring and coaching; (3) Creation of resources to support implementation; and (4) Student recruitment.
  - (d) As a condition of receiving the funds, eligible entities must submit an application to the SDE. The application must, at a minimum, address how the entity will: (1) Reach new and existing teachers with little to no computer science background; (2) Use research- or evidence-based practices for high-quality professional development; (3) Focus the professional learning on the conceptual foundations of computer science; (4) Reach and support historically underrepresented students in computer science; (5) Provide teachers with concrete experience with student centered, inquiry-based practices; (6) Accommodate the particular teacher and students needs in each district and school; and (7) Ensure that participating districts shall begin offering the course(s) and/or content within the same or next school year after the teacher receives the professional learning.
  - (e) Priorities for Awards. The SDE shall prioritize the following applications: (1) Local educational agencies that are working in partnership with providers of high-quality professional learning for K-12 computer science; (2) Proposals that describe strategies to enroll females and underrepresented minorities, students on free and reduced lunch, students with disabilities, and English language learners; and (3) Proposals from rural or urban areas with a low penetration of K-12 computer science offerings, including local educational agencies that partner together to form clusters of implementation.
  - (f) Any monies remaining in the fund at the end of the fiscal year shall not revert to the credit of the general revenue.



Demand for Connecticut employees with computer-science skills is high; in fact, the demand is nearly three times the national rate<sup>3</sup>. This is a huge opportunity for Connecticut but one our state can quickly lose to others should we not act with immediacy. According to the State Department of Labor, 15,000 computer-related jobs within software and IT as well as healthcare, insurance, and manufacturing firms will be available in Connecticut over the next decade<sup>4</sup>. The question is, “will the state have the workforce numbers to fill these positions?” The answer is dubious, at best. In fact, in 2017, Connecticut only produced 533 college graduates with computer-science degrees compared to the 5,500 state’s available jobs<sup>5</sup>.

The fact of the matter is, when it comes to preparing tomorrow’s workforce, Connecticut is sadly lagging. While white students in Connecticut fair well, the role of the Pre-K-12 education system must be to ensure that all students are on-track to graduating with the requisite skills for success in completing post-secondary education and securing fulfilling employment. Unfortunately, two-thirds of black and Hispanic students in CT are behind in Math and English<sup>6</sup>. What’s more, Connecticut still has the largest post-secondary degree-attainment gap between black and white students, and nearly the largest gap between Hispanic and white students<sup>7</sup>. By 2020, nearly half of Connecticut’s youngest workers (those 25-29 years old) and nearly one-third of Connecticut’s working-age population will be people of color<sup>8</sup>.

Ensuring the jobs available in Connecticut go to Connecticut residents requires an array of solutions, one of which is the expansion of computer-science coursework or program offerings for middle and high school students in the state’s high-need districts. While Connecticut could certainly benefit from the expansion of computer-science coursework or programming in all districts, limited resources coupled with state’s workforce demographic data require us to triage. Additionally, prioritizing high-need districts will support a commitment to educational equity, particularly as the digital divide between suburban and urban students grows.

Thank you for the opportunity to submit this testimony today. I would be happy to discuss this legislation further at any time.

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***About the Connecticut Council for Education Reform (CCER)***

The Connecticut Council for Education Reform (CCER) advocates for Pre-K-12 education policies and practices that narrow achievement gaps so all Connecticut students can access and succeed within a 21st-century education system. We do this by collaborating with educators, employers, and community members across the state.

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<sup>3</sup> <https://code.org/promote/ct>

<sup>4</sup> <http://www.hartfordbusiness.com/article/20190218/PRINTEDITION/302149962>

<sup>5</sup> <https://code.org/promote/ct>

<sup>6</sup> <https://ctmirror.org/2018/09/06/two-thirds-black-hispanic-students-behind-school-test-scores-intractable/>

<sup>7</sup> <https://edtrust.org/the-state-of-higher-education-equity/>

<sup>8</sup> <https://www.nmefoundation.org/resources/assessment/new-england-2020>

We are guided by the belief that schools must prepare all students to become thriving citizens and professionals, and we are committed to recruiting, preparing, and supporting educators to deliver on that promise. We consider how enacting one set of policies/actions makes realizing other policies/actions more possible and meaningful. Our priorities assume examples of positive growth and outcomes exist in some schools and districts, and that the state's role is to understand how certain schools and districts working with historically underserved students are closing achievement gaps while others are not. We are attempting to study, learn from, optimize, and most importantly—scale—what's already been proven to have impact. Our recommendations focus on optimizing present resources rather than seeking new funding sources.